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CONTRIBUTIONS TOWARD A FLORA OF NEVADA

NO. 37)

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X SCROPHULARIACEAE OF NEVADA.

PART I - MIMULUS X

by

GABRIEL EDWIN

85X324

June 27, 1955

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A series prepared through the cooperation of  
the National Arboretum and the Section of Plant Introduction

Horticultural Crops Research Branch

U.S. Agricultural Research Service

U. S. Department of Agriculture

Plant Industry Station

Beltsville, Md.



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SCROPHULARIACEAE OF NEVADA  
PART I - MIMULUS  
By Gabriel Edwin \*

Contribution Toward a Flora of Nevada, No. 37

MIMULUS L., Sp. Pl. 2. 1753.

Annuals or perennials; in Nevada herbs; glabrous or pubescent; leaves mostly opposite, occasionally in a basal rosette or scattered, sessile or petioled, entire, toothed or lobed; calyx with sepals at least partly united, teeth equal, subequal or unequal. Corolla equally or unequally bilabiate, yellow to blue, red, reddish purple, sometimes white; tube included or exserted; upper lip 2-lobed, lower 3-lobed, mostly exceeding the upper, often with 2 hairy patches extending into the throat; stamens 4, didynamous, filaments adnate to the corolla, anthers equally 2-celled, confluent at the top, sometimes exserted; stigma lobes distinct, style simple; capsule oblong or ovoid, 2-valved, loculicidally dehiscent; seeds mostly numerous, ovoid, ellipsoid or subrotund, usually reticulate, rarely smooth.

Type species: M. ringens L., Sp. Pl. 634. 1753.

SYNOPSIS OF SUBGENERA AND SECTIONS

Subgenus I. Synplacus Grant. Placentae completely united into a central column or splitting less than half way to the base; pedicels

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usually longer than the calyx; style glabrous or puberulent, rarely pubescent; capsule mostly dehiscent to the base along both sutures; corolla dropping soon after anthesis (except in M. breweri).

1. Calyx teeth equal or subequal, not folding over the calyx orifice at maturity; palate, when present, not prominent, not constricting, nor even partly closing the corolla throat.
  2. Stamens exserted; calyx teeth 4-6 mm. long . . . ERYTHRANTHE (A)
  2. Stamens mostly included, when exserted the calyx teeth not exceeding 3 mm. in length . . . . . PARANDANTHUS (B)
1. Calyx teeth very unequal, folding over the orifice at maturity; palate always present, well-developed, frequently at least partly closing the corolla throat . . . . . SIMIOLUS (C)

Subgenus II. Schizoplacus Grant. Placentae mostly splitting to the base and adherent to the valves; pedicels usually shorter than the calyx; style glandular-pubescent; capsule mostly dehiscent to the base along the inner suture and part way or not all along the outer; corolla persisting on the developing capsule.

Corolla tubular-funnelform to nearly campanulate, style glandular-pubescent, at least along the upper half . . . . EUNANUS (D)

(A) ERYTHRANTHE Greene

1. Corolla strongly bilabiate, tube only very slightly exserted; stigma lips ciliate . . . . . 1. M. CARDINALIS
1. Corolla only slightly bilabiate, tube much exserted; stigma lips ciliate . . . . . 2. M. EASTWOODIAE



(B) PARADANTHUS Grant

1. Corolla lobes distinctly unequal.

2. Mature calyx distinctly inflated; leaves ovate, dentate.

3. M. FLORIBUNDUS

2. Mature calyx little or not at all inflated, sometimes distended by the mature capsule; leaves linear or linear-lanceolate, entire . . . . . 4. M. MONTIOIDES

1. Corolla lobes equal or subequal.

3. Anthers bearded (rarely glabrous in M. primulooides); perennial.

4. Flowers mostly solitary, never racemose; stems often scapose.

5. M. PRIMULOIDES

4. Flowers racemose; stems leafy.

5. Stems glandular-pubescent; corolla red or pink; calyx teeth 4-6 mm. long . . . . . 6. M. LEWISII

5. Stems with soft, long pubescence, slimy to the touch; corolla yellow; calyx teeth 1.5-3 mm. long.

7. M. MOSCHATUS

3. Anthers glabrous; annuals.

6. Clayx teeth arising from the tube at different levels, tube deeply cleft with sinuses of various lengths, lowest teeth about equaling the length of the tube; one pair of stamens often reduced in length, but remaining functional.

8. M. PILOSUS

6. Calyx teeth all arising from the tube at the same level, not exceeding 1/3 the size of the tube, sinuses equal in length or almost so; both pairs of stamens fully developed in length.



7. Plants glandular-pubescent or glandular-villous; corolla persisting on the developing capsule; stems slender, 2-15 cm. tall . . . . . 9. *M. BREWERI*

7. Plants glabrous or minutely puberulent; corolla falling soon after anthesis, plants usually not exceeding 8 cm.

8. Stigma lobes unequal; calyx teeth eciliate.

10. *M. SUKSDORFII*

8. Stigma lobes equal; calyx teeth ciliate.

11. *M. RUBELLUS*

(C) *SIMIOLUS* Greene

1. Corolla throat open; flowers axillary, or in a few-flowered raceme, near or at the summit . . . . . 12. *M. GLABRATUS*

1. Corolla throat partly, or nearly closed by the prominent palate; flowers commonly numerous, in a definite raceme, sometimes few-flowered.

2. Upper calyx tooth rarely more than twice the length of the others.

3. Upper leaves conspicuously connate-perfoliate, glaucous or pubescent . . . . . 13. *M. GLAUCESCENS*

3. Upper leaves neither connate-perfoliate nor glaucous, seldom pubescent.

4. Style much shorter than the smaller pair of stamens; leaves usually broader than long; corolla very little exceeding the calyx . . . . . 14. *M. BRACHYSTYLIS*

4. Style equaling or longer than the stamens; leaves usually



longer than broad; corolla usually well-exserted.

5. Flowers mostly in definite racemes; pedicels usually shorter than the corollas; rootstocks rarely fleshy or yellow. . . 15. *M. GUTTATUS*

2. Upper calyx tooth almost 3 times the length of the others.

## 17. M. NASUTUS

(D) EUNANUS Gray

1. Mature calyx distinctly inflated.

2. Corolla manifestly bilabiate.

3. Calyx throat oblique, teeth unequal.

4. Calyx teeth mostly blunt. . . . . 18. M. TORREYI

4. Calyx teeth triangular or lanceolate, acute.

19. M. ANGUSTIFOLIUS

3. Calyx throat slightly, if at all oblique, teeth nearly equal.

20. M. NANUS

2. Corolla not obviously bilabiate, the lobes equal or nearly so.

5. Anthers glabrous; stigma lobes unequal. 21. M. SPISSUS

5. Anthers hispid; stigma lobes equal. . . 22. M. BIGELOVII

1. Mature calyx little, if at all inflated, sometimes distended by the mature capsule.

7. Stamens mostly included, only the upper pair sometimes slightly



8. Calyx teeth acute, about  $1/4$  as long as the tube; capsule ovate-lanceolate, usually well-exserted.

9. Calyx 6-10 mm. long; plant not noticeably mephitic.

23. M. DENSUS

9. Calyx 4-6 mm. long; plant when fresh, strongly mephitic.

24. M. MEPHITICUS

8. Calyx teeth lanceolate-subulate, at least  $1/3$  as long as the tube; capsule broadly oblong or ovate, scarcely exserted.

10. Stamens included; calyx 3-5 mm. long, teeth unequal; corolla tube 2 to 3 times the length of the calyx.

25. M. COCCINEUS

10. Upper pair of stamens little exserted; calyx 0.8-1.1 cm. long, teeth subequal; corolla tube  $1\frac{1}{2}$  to 2 times the length of the calyx . . . . . 26. M. WASHOENSIS

7. Both pairs of stamens distinctly exserted . . 27. M. STAMINEUS

1. MIMULUS CARDINALIS Dougl. in Benth., Scrcph. Ind. 28. 1835.

Erythranthe cardinalis Spach.; Mimulus cardinalis var. rígens Greene; M. cardinalis var. griseus Greene; M. cardinalis var. exsul Greene.

Perennial; erect to procumbent, villous or villous-viscid; stems from a running rootstock up to about 30 cm.; leaves obovate, oblong or lance-obovate, 2-12 cm. long, 1-5 cm. wide, sessile, auriculate, serrate with salient teeth; pedicels usually exceeding the subtending leaves.



Dry or damp places. Douglas, Mineral and Ormsby Counties.

2. **MIMULUS EASTWOODIAE** Rydb., Bull. Torr. Bot. Club 40: 483. 1913.

M. cardinalis Eastw.

Perennial by stolons or rootstocks, procumbent, usually strongly woolly-canescens; stems terete, short; leaves varying from obovate to oblong, with acute tips, 2-6 cm. long, 0.5-3 cm. wide, sessile, coarsely dentate along the upper half, lower leaves usually reddish below, with cuneate bases; pedicels exceeding subtending leaves; flowers few.

Wet shaded places. Reported in Nevada by Wheeler's Expedition, 1872.

3. **MIMULUS FLORIBUNDUS** Dougl., Bot. Reg. 13, pl. 1125. 1828.

M. peduncularis Dougl.; M. serotinus Suksd.; M. floribundus var. minor Hook.; M. pubescens Benth.; M. deltoideus Gdgr.

Annual; viscid-villous, more or less slimy plants; stem branched from the base, procumbent or weakly erect, up to about 50 cm. high; leaves mostly winged petiolate (occasionally sessile), scattered, thin ovate, obovate or ovate-lanceolate, 1.5-5 cm. long, 0.5-3 cm. wide, acute, saliently dentate, ciliate, base broadly subcordate, sometimes cuneate, 3-5-nerved from the base; pedicels filiform, mostly spreading at maturity, frequently shorter than the subtending leaves.

Mostly dry places.

Churchill, Douglas, Elko, Lincoln, Mineral, Nye and Washoe Counties.



ii. *MIMULUS MONTIOIDES* Gray, Proc. Am. Acad. 7: 380. 1867.

*M. rubellus* var. *latiflorus* Wats.; *M. rubellus* Gray (in part).

Annual; erect, simple or branched, viscid-puberulent to glandular-pubescent plant; leaves linear to linear-lanceolate, entire, obtuse, 1.5-2.5 cm. long, 2-8 mm. broad, upper sessile, lower usually short-petiolate; pedicels 0.5-3 cm. long.

Dry open places.

Douglas, Nye, Ormsby and Washoe Counties.

5. *MIMULUS PRIMULOIDES* Benth., Scroph. Ind. 29. 1835.

*M. pilosellus* Greene; *M. nevadensis* Gdgr.; *M. primuloides* var. *pilosellus* (Greene) Smiley.

Perennial; glabrous to viscid-villous or puberulent, producing stolons, runners or bulbils, scapose or with true stem leaves; flowers often solitary or subsolitary; leaves broadly ovate to ovate-lanceolate, occasionally cuneate, always sessile. (Having the habit of the genus *Primula*).

Mostly in moist to wet (occasionally dry), open places, 6000-11,000 ft.

Douglas, Elko, Humboldt, Mineral, Nye, Ormsby and Washoe Counties.

6. *MIMULUS LEWISII* Pursh, Fl. Am. Sept. 2: 427, pl. 20. 1814.

*M. lewisii* var. *exsertus* Coult. & Fisher; *M. roseus* Dougl.; *M. roseus* var. *glabrior* Hook.; *M. lewisii* var. *tetonensis* A. Nels.;



M. lewisii var. alba Henry; M. lewisii f. tetonensis (Nels.) Macb. & Pays.

Perennial from a running rootstock; stems erect, 3-8 dm. tall, usually unbranched, mostly viscid-pubescent, sometimes viscid-villous; leaves thin, oblong-lanceolate to ovate-oblong, 2-8 cm. long, 1-2.5 cm. wide, 3-5-nerved from the base, sessile, entire to irregularly dentate with short blunt teeth; pedicels mostly exceeding the subtending leaves. Superficially much like the species of section Erythranthe.

Mostly damp and wet, exposed places, 6000-9100 ft.

Clark, Douglas, Elko, Ormsby, Storey and Washoe Counties.

7. MIMULUS MOSCHATUS Dougl., Bot. Reg. 13, pl. 1118. 1828.

Perennial; rootstocks; stem weak, creeping or decumbent, up to 33 cm. long; entire plant viscid-villous and sometimes slimy to the touch; leaves broadly or narrowly ovate, 1-4 cm. long, 0.5-2.5 cm. wide, acute or obtuse, mostly denticulate, sometimes entire, short-petiolate, pinnately veined; flowers few; pedicels shorter than the subtending leaves.

This plant is perhaps much more variable than is at present indicated. Specimens with equal calyx teeth, different pubescence and with other variations in character have been noted that are either close to or synonymous with this entity. However, in all cases the material was incomplete and no definite conclusions could be drawn.

Damp, wet or rarely dry, open or shaded places.

Douglas, Elko and Washoe Counties.



8. *MIMULUS PILOSUS* (Benth.) Wats., Bot. King's Exp. 225. 1871.

Mimetanthe pilosa (Benth.) Greene; Mimulus exilis Dur. & Hilg.

Annual; stem villous, erect, branched or unbranched; leaves shorter than the pedicels.

This species is easily recognized due to the very unusual calyx lobes and the often reduced stamens.

Wet, damp or dry places, about 5000-6500 ft.

Churchill, Elko, Humboldt, Lander and Washoe Counties.

9. *MIMULUS BREWERI* (Greene) Coville, Contr. U. S. Nat. Herb. 4: 171.

1893.

Annual; simple or branched, up to 17 cm. high, glandular-pubescent or puberulent; leaves linear to oblong, small, up to 1.8 cm. long, ¼ mm. wide, weakly toothed or entire, mostly obtuse, short-petiolate or usually sessile and always nerved from the base; pedicels up to 1 cm. long, mostly exceeding the calyx.

Mostly damp, exposed places, 8000-11,000 ft.

Elko, Nye and Washoe Counties.

10. *MIMULUS SUKSDORFII* Gray, Syn. Fl. N. Am. ed. 2, 2, pt. 1, suppl.

450. 1886.

Annual; low bushy, much-branched plants, up to about 6 cm. tall, with sparse, viscid puberulence and a red tinge; leaves mostly linear or almost so, sometimes oblanceolate-linear, not more than 2 mm. wide, 12-1½ mm. long; obtuse, with small, sinuate teeth or subentire, mostly sessile, the lowest occasionally short-petiolate.



Very close to M. rubellus Gray but the stigma lobes are clearly different. However, M. breweri (Greene) Coville, M. suksdorfii Gray and M. rubellus Gray present a confusing problem. A rather intensive study (which is beyond the scope of this paper) seems necessary to establish, if possible, the true limits and relationship of these three taxa, assuming that three taxa do exist.

Dry or wet places, 4000-11,300 ft.

Douglas, Elko, Esmeralda, Humboldt, Mineral, Nye, Washoe and White Pine Counties.

11. MIMULUS RUBELLUS Gray ex Torr., Bot. Mex. Bound. 116. 1859.

M. gratiolooides Rydb.

Annual; stems reaching 20 cm., simple or branched; entire plant often beset with glandular pubescence but sometimes glabrous; leaves varying from linear to oblong, often tinged with red, up to 2 cm. long, and 5 mm. broad, mostly smaller and narrower, sessile, or the lowest sometimes short-petiolate, the margins mostly with irregular, short teeth, 1-3-nerved from the base.

Dry, sometimes shaded places, 3000 ft. upwards.

Elko, Esmeralda, Lincoln, Nye, Washoe and White Pine Counties.

12. MIMULUS GLABRATUS HBK., Nov. Gen. et Sp. 2: 370. 1817.

M. andiculus HBK.; M. jamesii var. texensis Gray; M. tener Phil.

Perennial, glabrous or almost so; stems stoloniferous or creeping, rooting at the nodes, branched, up to 4 cm. tall; leaves broadly



ovate, subcordate, irregularly dentate, 2-5 cm. long, 1-3 cm. wide, upper sessile, lower petiolate, cuneate; petioles longer or shorter than the blades.

KEY TO VARIETIES

Leaves mostly broadly ovate, irregular and strongly dentate; pedicels and calyx mostly glabrous . . . . . 12 a. M. GLABRATUS  
var. GLABRATUS

Leaves mostly suborbicular, oval with a rounded apex, entire undulate, sparsely dentate or denticulate; pedicels and calyx mostly pubescent.  
12 b. M. GLABRATUS  
var. FREMONTII

12 a. *MIMULUS GLABRATUS* var. GLABRATUS

Aquatic or semi-aquatic. Elko and Lyon Counties.

12 b. *MIMULUS GLABRATUS* var. FREMONTII (Benth.) Grant, Ann. Mo. Bot.  
Gard. 11: 190. 1924.

Washoe Co.

13. *MIMULUS GLAUCESCENS* Greene, Bull. Calif. Acad. Sci. 1: 113. 1885.

Annual; erect, glabrous or glaucous; stems terete, simple or branched, occasionally 4-angled above, up to 40 cm.; lower leaves petiolate, upper few conspicuously connate-perfoliate and usually glaucous, margins subentire with short scattered teeth; pedicels about as long as the mature calyx.



Dry or damp places. Humboldt and Lander Counties.

14. *MIMULUS BRACHYSTYLIS* Edwin, L. West. Bot. 7: 138-139. 1954.

Annual; stem glabrous, upright, simple or little-branched from the base, 4-angled, up to 22 cm.; leaves ovate, suborbicular or rotund with reniform bases, up to 1.6 cm. long, mostly as broad as or broader than long, subentire or weakly and irregularly dentate, lower long-petiolate, upper subsessile, uppermost sessile, more or less villous; pedicels longer above, shorter below than the subtending leaves and calyxes.

Elko and Nye Counties, 5600-7000 ft.

15. *MIMULUS GUTTATUS* DC., Cat. Hort. Monsp. 127. 1813.

M. langsdorffii J. Donn; M. luteus J. Donn, not L.; M. lyratus Benth.; M. rivularis Benth.; M. scouleri Hook.; M. luteus var. gracilis Gray; M. glabratus var. ascendens Gray; M. guttatus var. grandis Greene; M. langsdorffii var. platyphyllus Greene; M. langsdorffii var. argutus Greene; M. langsdorffii var. grandis Greene; M. langsdorffii var. californicum Jepson; M. langsdorffii var. guttatus Jepson; M. hirsutus Howell; M. grandiflorus Howell; M. grandis Heller; M. equinus Greene; M. paniculatus Greene; M. prionophyllum Greene; M. clementinus Greene.

Annual, or perennial by stolons, creeping rootstocks or stems rooting at lower nodes; glabrous or pubescent; stems terete or 4-angled, fistulous and erect or soft and reclining, up to 55 dm., mostly simple



but sometimes branched; leaves also very variable, ovate, ovate-oblong or oblong-lanceolate, 0.8-15 cm. long, 0.6-8 cm. wide, coarsely dentate or lyrate and sometimes with small projections at the base of the blade, occasionally dentations approach regularity, then are finer and smaller, lower long-petiolate, upper sessile; internodes mostly longer than the leaves; pedicels mostly short and thick, not twice the length of the calyx, occasionally thin and elongate.

#### KEY TO VARIETIES

Leaves often longer than 2 cm., stems taller than 2.5 cm.; corolla mostly much exceeding the calyx.

- Leaves 8-15 cm. long, 6-8 cm. wide; calyx in fruit 1-2.5 cm. long, 0.8-1.5 cm. wide . . . . . 15 a. *M. GUTTATUS*  
var. *GUTTATUS*
- Leaves 1-3.5 cm. long, 1-1.5 cm. wide; calyx in fruit 0.5-1.2 cm. long, 0.4-0.8 cm. wide . . . . . 15 b. *M. GUTTATUS*  
var. *DEPAUPERATUS*
- Leaves mostly shorter than 2 cm.; stems not exceeding 2.5 cm.; corolla little longer than the calyx . . . . . 15 c. *M. GUTTATUS*  
var. *HALLII*

#### 15 a. *MIMULUS GUTTATUS* var. *GUTTATUS*

Widely distributed in wet, exposed places throughout the State, variable; the varieties confluent with the typical.



15 b. M. GUTTATUS var. DEPAUPERATUS (Gray) Grant, Ann. Mo. Bot. Gard.  
11: 170. 1924.

Clark and Elko Counties.

15 c. M. GUTTATUS var. HALLII (Greene) Grant, l. c. 11: 172. 1924.  
Elko Co.

16. MIMULUS TILINGI Regel, Gartenfl. 18: 321, pl. 631. 1869.

#### KEY TO VARIETIES

Plants 5-20 cm. long; leaves elliptical to broadly ovate, lower short-petioled; stems usually bearing more than 3 flowers.

16 a. M. TILINGI

var. TILINGI

Plants 20-40 cm. long; leaves oblong to suborbicular, lower long-petiolate; stem bearing 1-3 flowers. . . . . 16 b. M. TILINGI

var. CORALLINUS

16 a. MIMULUS TILINGI var. TILINGI

From dry to aquatic (mostly wet or muddy) places.

Churchill, Douglas, Elko, Esmeralda, Mineral, Nye, Ormsby and  
Washoe Counties.

16 b. MIMULUS TILINGI var. CORALLINUS (Greene) Grant, Ann. Mo. Bot.  
Gard. 11: 155. 1924.

Wet places.. Washoe Co.



17. *MIMULUS NASUTUS* Greene, Bull. Calif. Acad. Sci. 1: 112. 1885.

*M. luteus* in part of authors; *M. langsdorffii* in part of authors; *M. subreniformis* Greene; *M. glareosus* Greene; *M. langsdorffii* var. *nasutus* Jepson; *M. erosus* Greene; *M. minusculus* Greene; *M. cordatus* Greene; *M. cuspidatus* Greene; *M. puberulus* Gdgr.; *M. bakeri* Gdgr.; *M. parishii* Gdgr., not Greene.

Annual; puberulent to almost glabrous, rarely pubescent plants; stem erect or ascending, almost always branched, up to 6 cm., 4-angled, often winged; leaves round-ovate to oblong or rarely somewhat ovate-lanceolate, 5-12 cm. long, almost as broad, rarely equaling the length, 3-5-nerved from the base, often red-tinged below, lower with clasping petioles, upper sessile; flowers in a raceme or raceme-like inflorescence; pedicels 2 to 3 or more times longer than the calyx, erect but recurving in fruit.

#### KEY TO VARIETIES

Floral leaves tinged with red below; stems usually stout, erect; corolla 0.7-2.3 cm. long . . . . .	17 a. <i>M. NASUTUS</i> var. <i>NASUTUS</i>
Floral leaves densely, white villous below; stems weak, reclining; corolla 0.8-1.3 cm. long . . . . .	17 b. <i>M. NASUTUS</i> var. <i>MICRANTHUS</i>

17a. *MIMULUS NASUTUS* var. *NASUTUS*

Dry to aquatic, mostly exposed, damp to wet places.

Clark, Elko, Humboldt, Lander, Lyon and Washoe Counties.



17 b. *MIMULUS NASUTUS* var. *MICRANTHUS* (Heller) Grant, Ann. Mo. Bot.

Gard. 11: 182. 1924.

Wet places. Elko Co.

18. *MIMULUS TORREYI* Gray, Proc. Am. Acad. 11: 97. 1876.

Eunanus torreyi Greene; E. fremontii Gray, not Greene.

Annual; erect, glandular-pubescent plants; stems 0.5-3.5 cm. high, simple or branched; leaves scattered, varying from spatulate to ovate, 1.5-3.5 cm. long, 0.3-1.3 cm. broad, short-petiolate, entire, or with a few teeth, obtuse, often red-tinged below; internodes usually exceeding the leaves; pedicels 2-3 mm. long.

Rare. Lincoln Co.

19. *MIMULUS ANGUSTIFOLIUS* (Greene) Grant, Ann. Mo. Bot. Gard. 11: 298.

1924.

Eunanus angustifolius Greene

Annual; glandular-pubescent plants; stem red, up to 10 cm., mostly branched; leaves numerous, often clustered, linear or oblanceolate, 1-1.7 cm. long, 1-3 mm. wide, entire, sessile; corolla lips very unequal.

Known only from Nevada. Elko, Mineral and Washoe Counties.

20. *MIMULUS NANUS* Hook. & Arn., Bot. Beechey's Voyage, 378. 1840.

M. nanus pluriflorus Hook. & Arn., Eunanus tolmei Benth.,

E. nanus Holz.

Annual; viscid-puberulent to glandular-pubescent plants; stems



up to 15 cm., usually branched, low and spreading, tinged with red, or straw-colored or green; lower leaves petiolate, upper sessile, all 1-3-nerved from the base, obovate, narrowly ovate or oblong, up to 3 cm. long and 6 mm. wide, subentire, acute or obtuse; pedicels 2-3 cm. long; flowers many.

Dry, exposed places.

Douglas, Elko, Humboldt, Lander, Lyon, Nye, Ormsby, Pershing and Washoe Counties.

21. *MIMULUS SPISSUS* Grant, Ann. Mo. Bot. Gard. 11: 277. 1924.

Annual; stem 15 cm. tall, glandular-villous, much-branched; flowers and leaves densely crowded near the apex; leaves broadly obovate, short-petiolate, acute or cuspidate, entire, 1-15 cm. long, 4-6 mm. broad, 3-5-nerved from the base; pedicels 1-2 mm. long.

#### KEY TO VARIETIES

Leaves ovate; stigma lobes unequal, ciliate . . . 21 a. *M. SPISSUS*  
var. *SPISSUS*

Leaves lance-ovate or elliptical; stigma lobes equal, eciliate.

21 b. *M. SPISSUS*  
var. *LINCOLENSIS*

21 a. *MIMULUS SPISSUS* var. *SPISSUS*

Mostly dry places. Clark, Lincoln and Nye Counties.



21 b. *MIMULUS SPISSUS* var. *LINCOLNENSIS* Edwin, L. West. Bot. 7: 222.

1955.

Lincoln Co.

22. *MIMULUS BIGELOVII* Gray in Proc. Am. Acad. 11: 96. 1876.

Eunanus bigelovii Gray

Annual; stem mostly branched, up to 25 cm. high, glandular-pubescent; leaves mostly elliptical, sometimes narrowly obovate, tapering to an acute apex, scattered, mostly entire or with a few teeth near the tip, short-petiolate, subsessile or occasionally sessile; pedicels 1.5-3 (-6) mm. long; calyx sometimes viscid-villous, usually having pronounced pubescence.

KEY TO VARIETIES

Leaves only narrowly obovate, tapering to narrowly sessile bases, 1-nerved from the base, not cuspidate-tipped. . . . 22 a. M. BIGELOVII  
var. BIGELOVII

Leaves broadly obovate or ovate, sessile by a broad base, 3-5-nerved from the base, strongly cuspidate-tipped. . . . 22 b. M. BIGELOVII  
var. OVATUS

22 b. *MIMULUS BIGELOVII* var. *BIGELOVII*

Dry sites, 2500-11,200 ft.

Clark, Douglas, Esmeralda, Lincoln, Mineral, Ormsby and Washoe Counties.



22 b. *MIMULUS BIGELOVII* var. *OVATUS* Gray, *Syn. Fl. No. Am.* ed 2, 2, pt. 1, suppl. 445. 1886.

M. bigelovii var. cuspidatus Grant; M. cusickii (Greene) Piper;  
Eunanus cusickii Greene.

Dry places.

Clark, Esmeralda, Lander, Lincoln, Nye and Washoe Counties.

23. *MIMULUS DENSUS* Grant, *Ann. Mo. Bot. Gard.* 11: 298. 1924.

Annual; glandular-pubescent, viscid plants, sometimes viscid-villous; stem mostly much-branched, up to 15 cm.; leaves numerous, oblong, linear or elliptical, 1.5-2.5 cm. long, 2.5 mm. broad, sessile; flowers axillary, numerous; pedicels 2.5 mm. long.

Very difficult to separate from the older M. mephiticus Greene, possibly a synonym. Eastwood & Howell 9438 (Calif. Academy of Sciences and State College of Washington) is an intergrading specimen.

Mostly dry places, up to about 10,000 ft.

Churchill, Elko, Lander, Mineral, Nye, Ormsby and Washoe Counties.

24. *MIMULUS MEPHITICUS* Greene, *Bull. Calif. Acad. Sci.* 1: 9. 1884.

Eunanus mephiticus Greene.

Annual; stems erect, simple or branched, glandular-pubescent and viscid; leaves varying from nearly linear to oblanceolate, 1-2.2 cm. long, 2-5 mm. broad, entire, sessile or short-petiolate, obtuse or acute; pedicels 2-4 mm. long; the mephitic odor often disappears on drying.



Dry places. Esmeralda and Washoe Counties.

25. *MIMULUS COCCINEUS* Congdon, Erythea 7: 187. 1899.

Annual; stem erect, up to 6 cm., often branched; entire plant glandular-puberulent (occasionally almost glabrous); leaves linear to oblanceolate, small, up to 1 cm. long, 4 mm. broad, entire, usually obtuse, very short-petiolate or subsessile; pedicels rarely more than 1 mm. long; flowers clustered at the tips of the stems; calyx cylindrical, 3-5 mm. long.

Rare. Douglas Co.

26. *MIMULUS WASHOENSIS* Edwin, L. West. Bot. 7: 221. 1955.

Annual; stem glandular-pubescent, upright, unbranched, up to 10 cm. high; leaves sessile, entire or almost so, lanceolate, lance-linear, or elliptic (occasionally obovate) up to 1.8 cm. long, 3-6 (-8) mm. wide, ciliate; pedicels 2-4 mm. long; calyx 8-11 mm. long, ovate to somewhat campanulate.

Washoe Co.

27. *MIMULUS STAMINEUS* Grant, Ann. Mo. Bot. Gard. 11: 302. 1924.

Annual; stem branched, rarely simple, up to 10 cm. tall, densely glandular-pubescent; leaves sessile, numerous, oblanceolate to elliptical or occasionally linear, 1-2.5 cm. long, 2-5 mm. broad, entire, obtuse; pedicels 1-2 mm. long; calyx tubular, 5-8 mm. long.

Reported as occurring in Ormsby and Esmeralda Counties by Grant, l. c. The only specimen seen by the author is C. F. Baker 1375, Snow









